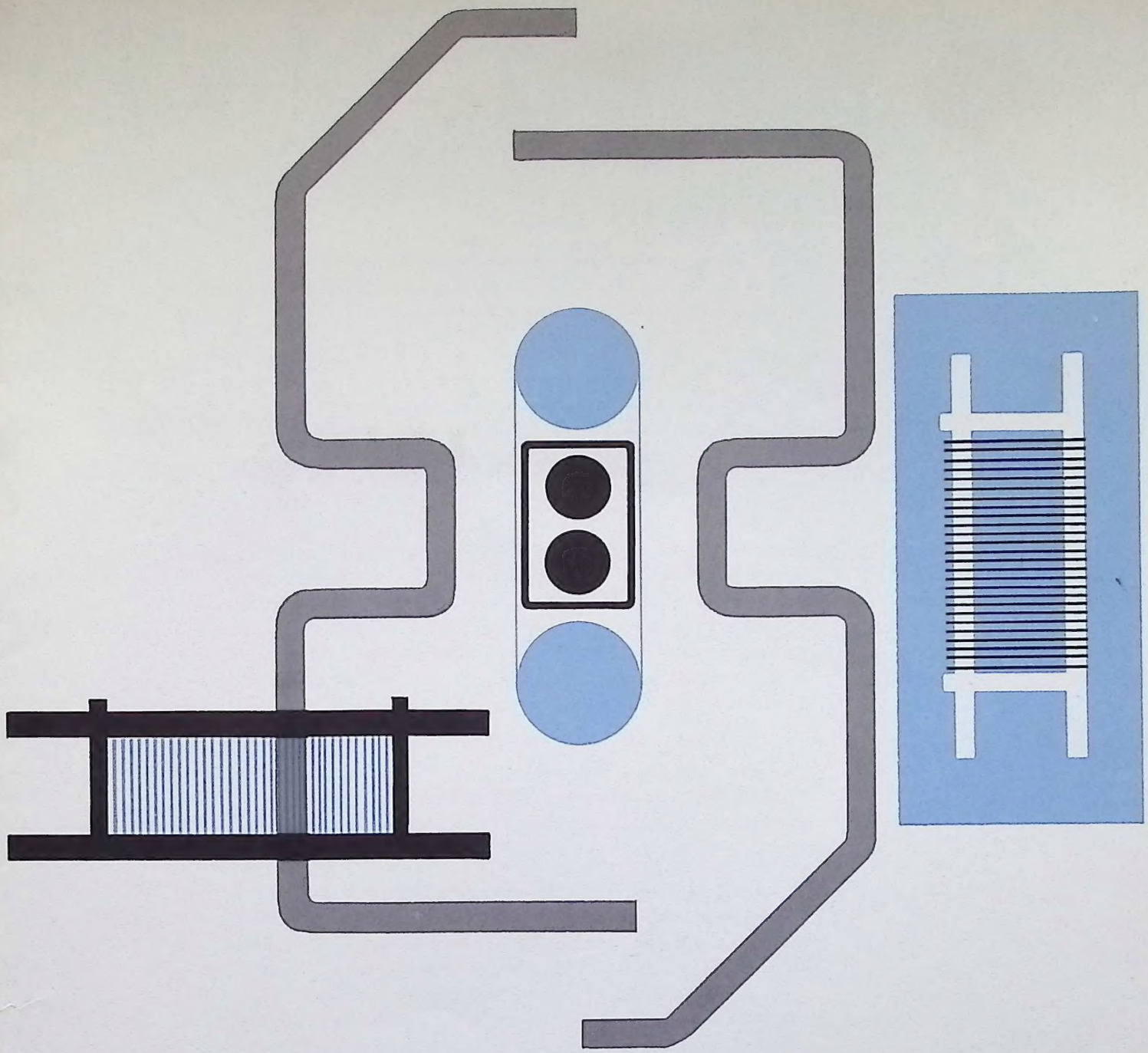
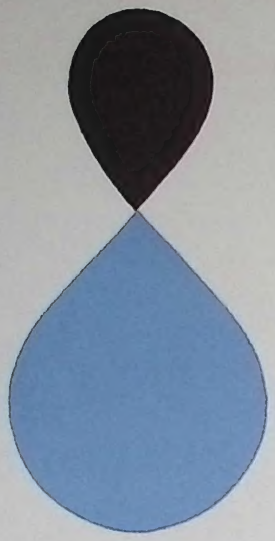


ROGERS BOOSTER

SPRING — 1964



EDITORIAL

The finest recommendation any component manufacturer can receive for his products is to have them specified as preferred parts by an Original Equipment Manufacturer.

The OEM knows that when a customer buys a radio or television receiver he bases his final choice on many factors. One of them, and an important one, is the manufacturer's reputation for producing sets that will operate many years without breakdown or loss of quality.

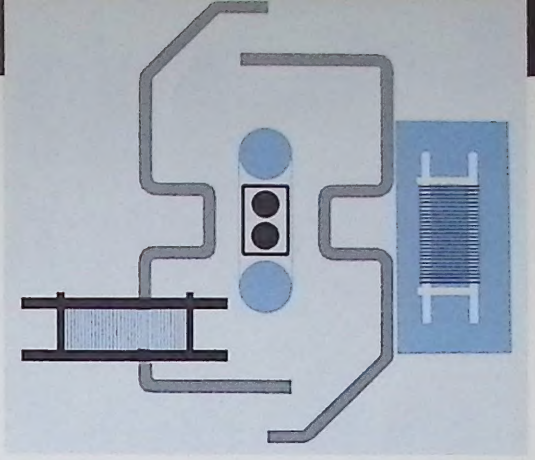
To achieve this reputation the OEM must use every control he can—hire the best design engineers and make sure they keep up to date with advancing technology; install the best possible production equipment in a carefully laid-out manufacturing area; hire competent production people; maintain strict quality control in every phase of the manufacturing operation; specify only the best components available within the required price range.

Few people are more competent to judge the quality of components than are engineers designing radio and television receivers. They must be competent to survive in this competitive business.

As a result of these market demands for greater tube reliability we as tube manufacturers have introduced superior manufacturing techniques and tightened quality control procedures. The average life of tubes in television receivers can be significantly increased by the correct application of modern high performance types. That is why we are so proud of the growing number of Rogers Tubes included in the original design of Canadian radio and television receivers. The list of tubes used in the new 1964 models, and the 100 more popular tubes already in use accompanies this issue of the Booster.

It may be considerable time before you get a service call to replace any of these tubes (new materials and techniques have extended tube life farther than ever before), but when you do, remember this important fact:

- Careful manufacturing and quality control ensure that the Rogers Tubes you will buy for replacement years later, have exactly the same characteristics as the tubes used by manufacturers today.



The search for improvement

When transistors first came on the market many optimistic supporters proclaimed that tubes would disappear within ten years.

They were right—to a very small degree. Some types of receiving tubes have gone out of production, only to be replaced by much better ones.

Spurred on by the new competition, tube manufacturers, who have always done a lot of research and development anyway, intensified their efforts to produce better products. Today, more than ten years after introduction of the transistor, tubes are still superior in many applications.

However, tubes have not been able to hold their ground without a stiff battle. Consumers, encouraged by convincing sales promotion, have learned to expect miracles from their electronic appliances.

And they get them!

Lee de Forest thought he was lucky to get a few hours service from his early triodes. But today both the consumer and service technician can expect that Rogers Tubes will give full satisfaction long after the tube warranty has lapsed.

Miracles like this, though, are achieved only through years of hard work by researchers working in many different sciences and technologies.

IMPROVEMENT COMES SLOWLY

Major developments or breakthroughs don't really happen overnight. They only seem to because a company working on a new idea keeps quiet about it until all the problems have been licked.

Take the frame grid tube for example. This is a new type of construction for control grids that opens up a lot of interesting new possibilities for designers of TV receivers.

The basic principle behind the frame grid was known to mathematicians and physicists at least twenty years ago. But tube manufacturers couldn't make use of the new knowledge until other technologies advanced. The frame grid, you see, isn't just a new mechanical arrangement. It uses new materials and had to wait until advances in metallurgy made the right alloys available in commercial quantities.

Then the production problems started. New machines and techniques had to be developed, and people had to be trained to work with them. At first there was a lot of hand labor, quantities were low and costs high. This limited use of the new tubes to military and commercial equipment where a premium for the extra margin of reliability could be justified.

Steady advances in production techniques have brought costs down to a level where frame grid tubes can be used in competition with other types of receiving tubes—with the advantage of superior electrical characteristics.

FRAME GRID TUBES ARE MADE IN TORONTO

At Philips Electronics Industries Ltd. Toronto, home of Rogers Electronic Tubes, changes and improvement in tube manufacture are continually being undertaken. The magnitude of engineering advances that have been introduced into Rogers tubes could only have been achieved by drawing on the world-wide activities of Philips' research and technical knowledge in electron tube manufacturing.

As such improvements are being developed they are introduced in the Toronto tube plant resulting in a tube of top quality, performance, reliability and value.

Rogers Frame Grid Tubes are continually being sold to the majority of Canadian Television and Radio manufacturers who are especially interested in offering the most modern tubes in their equipment.

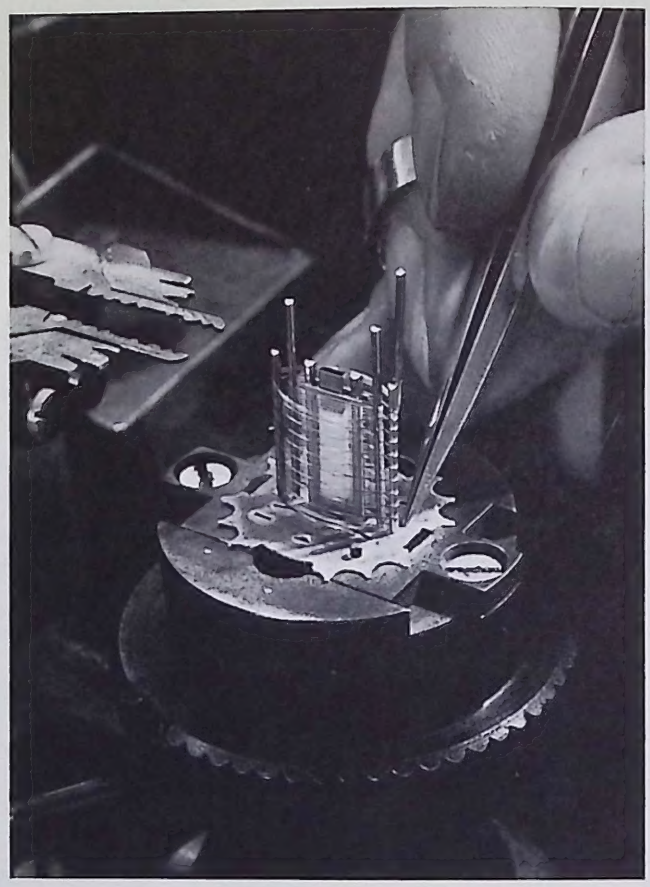
All this work, however, has not been for the frame grid tubes alone. All other Rogers receiving tubes benefit from the improved manufacturing and testing facilities. This is why you can help your customers achieve the miracles they expect from their radio and TV receivers.

The pictures on the next two pages show some of the new facilities in Toronto for making and testing Rogers tubes. This equipment and the skill of the people working with it are your real guarantee of high quality.

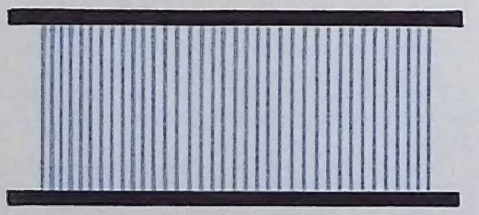
continued over

Philips production facilities...

ADVANCED PROCESSES ARE DEVELOPING THE FRAME GRID TUBE TO GIVE YOU GREATER FLEXIBILITY.



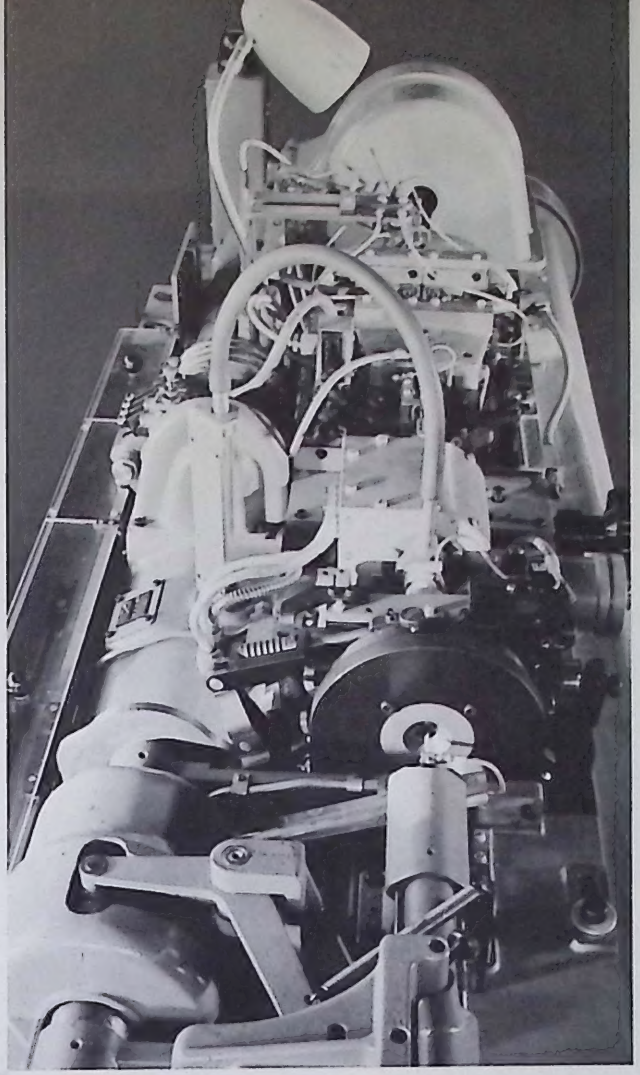
All tube components are assembled in precision jigs to ensure optimum accuracy of construction. This accuracy is maintained throughout the remaining processing steps of manufacture by specially engineered components. A particular example is the frame grid which provides a hitherto unachievable regularity in the close spacing between cathode and control grid — this being the key requirement for uniformity of high gain in every tube.
The illustration shows a partial assembly of a frame grid tube with the frame grid located in position with respect to its adjacent components.



TESTING

Each tube is repeatedly tested and retested using equipment specially designed by Philips engineers to ensure that it meets all electrical specifications, under normal, over-run vibration and shock conditions.

These same tests repeated after a holding period also ensure that all lots are maintained to the same rigid quality standard.

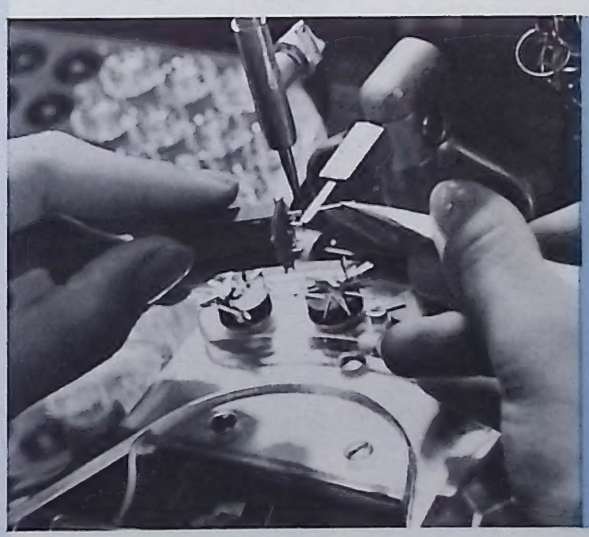


AUTOMATIC GRID MACHINE

As with many of the other product operations, the manufacturing of the tube grids requires exacting control and it is preferred that the grids are handled as little as possible by hand to prevent any accidental damage or distortion.

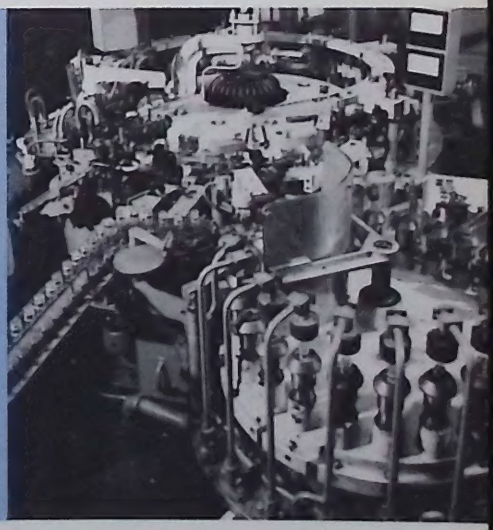
This is achieved by this new fully automatic grid manufacturing machine. It delivers the finished grid in trays ready for the next step in tube assembly.

An added feature is the heat-treatment of the grids on the machine. It is possible to release all tensions in the grid wires, thus preventing the grid from distorting later in the finished tubes.



CYCLO-MATIC SPOT WELDING

Highly skilled operators using specially designed miniature spot welding machines, weld the many components into a single, strong, rigid unit.

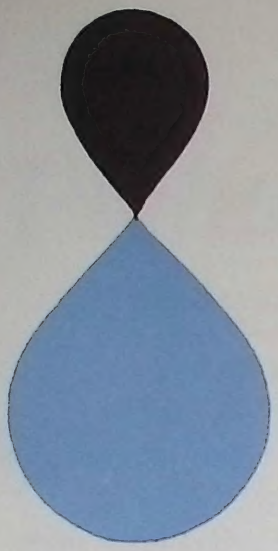


INVERTED SEALING

In this operation the glass tube base is sealed to the glass envelope in a unique inverted method which does not allow the parts within to be affected by the heat.

This feature is incorporated into a sealer-exhaust machine, and together with an automatically programmed process, represents the ultimate achievable at present in the sealing and pumping of electron tubes.

The benefits attained therefore are passed on to the user in improved performance and longer tube life.



BIG GUNS

trained on electronics'

The formation, by radio and TV technicians, of associations devoted to the promotion of a better public image has been described in previous editions of the "Booster." Today, the status of the electronic retail merchant is in the balance. Abuse of an uninformed public by unethical practitioners is widespread. Trustworthy merchants are looked upon with suspicion by once-bitten radio, TV and Hi-Fi owners. Recognizing the real value of ethical electronics dealers in our national economy and domestic stability, the Retail Merchants Association of Canada Incorporated has taken an impressive step toward the establishment of a satisfactory business atmosphere. The formation of the R.M.A. "Electronic Guild" is of vital interest to everyone engaged in reputable practice of electronics retailing and servicing.

The R.M.A. was established in 1896 and was incorporated as a national organization by Special Act of Parliament in 1910. Since that time, this completely non-profit organization has been working effectively for the protection and betterment of all retail merchants. Every segment of trade in Canada is fully represented by the R.M.A.

Working under the watchword "Integrity in Business" the Retail Merchants Association has applied itself diligently to many diverse tasks. The aims and objects laid down in its original charter describe the R.M.A. as wedded to: "The promotion of the industrial and commercial interests of the retail merchants of Canada—The collection and publication of information and statistics relating to or concerning such interests—The arbitration and settlement of trade disputes arising between any of its members—The procuring and furnishing to its members information as to the solvency of persons who deal with any of its members—Generally all such other lawful and similar objects for promoting the trade interests of its members as may from time to time be determined by the Association, including without limiting the generality of the foregoing . . . the promotion of co-operation amongst retail merchants and adoption of proper business methods and high business standards and the elimination of wasteful methods and harmful practices . . . all to the end that the interests of the retail merchants and the consumer shall best be served".

These sound principles and intentions are behind a new venture that directly and importantly affects everyone in the electronics field. Of recent years it has become increasingly obvious that this industry suffers from the unethical practices of pirates and fly-by-night operators. Inefficient, or worse, damaging, work is performed by unscrupulous "repair" men and "moonlighters". Excessive charges are levied on parts and labour after a "catching" advertisement has promised low home-call prices. Public distrust of radio and TV shops and service outfits has grown alarmingly. Unfortunately, due to the harmful practices all too prevalent, this is to some extent justified.

The Retail Merchants Association of Canada has recently formed a new group, at present known as the "R.M.A. Electronic Guild Ontario" which is organized precisely to combat this intolerable situation.

Every reputable merchant wants to do a good job for a fair profit. He expects, quite reasonably, to create a sound public image. It is only just that he should start out with no unwarranted strikes against him.

The R.M.A.'s entry into the electronics field heralds important changes in the Radio and TV retail trade set up, and eventually, in the repair and service area. Since its inception, the R.M.A. has used the small annual contribution from members (the only source of revenue it uses) to develop a group of services that offer valuable benefits to all retail merchants. Membership in the Electronic Guild makes all R.M.A. services available to any reputable Radio and TV dealer.

Through the Association, group insurance of various types is available with savings of up to 40%. Insurance problems are investigated and advice is given by competent counselors. A nationwide collection service has enabled thousands of retailers to recoup on long overdue payments. Participating in one of the industries most vulnerable to this risk, electronics merchants benefit greatly from participation in the Association. Details of accounting methods and store planning techniques are available to all members on request. On the larger, overall battlefield, much work has been done to further parliamentary understanding. The R.M.A. was instrumental in the forming of the Department of Small Business—in the Dept. of Trade and Commerce by the Federal Government. This body has studied many of the problems existing in small business and has been able to make valuable recommendations to government. The Small Businesses Loans Act resulted in 1961 from R.M.A. action. Other Industrial Development Bank Loan facilities were also made available to retailers after R.M.A. pressure and presentation at Federal level.

In the field of dishonest business practices and false advertising, the R.M.A. has been hard at work to protect the sincere merchant and to attack the crooked operator. Quite recently, the conviction of a well known Canadian business firm was brought about under the Combines Regulations for illegal advertising as to price.

Continuing efforts to better the trading atmosphere in Canada is pledged by R.M.A. That the Electronic Guild will grow rapidly is already evinced by a surge of new Radio and TV dealer memberships. The sooner every reputable electronics merchant in Canada is a member of the Guild, the sooner government legislation can be passed to provide much needed reforms and institutions in the industry.

Among the first recommendations made by the Guild's originating committee is the formation of a licensing code for all technicians. Under this code, national standards of training and ability would be set and initial qualification would be by certification

pirates and crooks

Mr. D. Rolling, Assistant General Manager, Retail Merchants Association of Canada

through the Department of Labour. The establishment of apprentice's courses and examination by the Dept. of Labour would follow.

Equal in importance is an educational campaign to be directed at both the trade *and* the consumer. This would establish: the need for nation-wide standards of ability; the recognition of a code of ethics in advertising; the acceptance by the public of reasonable cost levels.

The importance of the daily press and various advertising media as a vehicle for disseminating the purposes and intentions of the Electronic Guild to every part of Canada is not underestimated. An "Advertising Code of Ethics" is gradually being accepted by all responsible publications. An example of such interest in improving the electronics image is the Bell Telephone Company's decision to exclude all labour price claims from the "Yellow Pages" in Ontario and Quebec.

The R.M.A. hopes to bring about a complete removal of unethical advertising placed by unlicensed operators and back-alley outfits. The honestly competitive activities of vigorous merchants is everywhere to be encouraged and indeed, is vital to the business blood of Canada. R.M.A. has no intention whatever of interfering with the setting of prices. In a healthy trading community these will automatically come to rest at a point equitable to both merchant and consumer.

Included in these important developments is widespread attention to the protection of reputable merchants. The practice of loss leadering by shady discount houses and mammoth organizations is at present under sharp attack by R.M.A. and trade organizations across Canada. This pernicious practice has a long term effect on the whole Canadian business scene that cannot be overestimated. That many good electronics merchants have already collapsed under such practices is reason enough for unanimous support of R.M.A.'s new Electronic Guild.

Within the industry itself improvements include an appeal to electronics manufacturers concerning the establishment of courses for repair technicians. It is suggested that these be made available for qualified personnel, not just franchised dealers, but *all* electronics personnel.

At present, the Electronic Guild of the Retail Merchants Association is in the "Steering Committee" stage. Applications for membership are being received from electronics dealers all over Canada at a very encouraging rate. An indication of the high esteem in which the R.M.A. is held in Canada and of the wholehearted approval the new Electronic Guild has received from all connected with the industry, is the backing given by one of our country's leading electronics figures. Robert C. Poulter, P.Eng., Vice-President and Director of Education of the Radio College of Canada has offered his services in an advisory capacity whenever they may be required. R.M.A. is happy to express publically its sincere appreciation for this public spirited assistance.

Working, whenever necessary, with the Better Business Bureau, R.M.A. keeps in constant touch with retail marketing in every part of Canada. R.M.A. representatives are available everywhere to put all the machinery of the Association into action for the smallest businessman.

As the Electronic Guild grows and achieves full stature as a Government implemented body, reputable Radio, TV and Hi-Fi dealers from coast to coast will enjoy the confidence of belonging to a respected trade. But . . . it will take time to root out the evils. And it can only be done effectively with the active support of every honest man in the electronics industry. Anyone who believes that every man owes some of his time, effort and money to the industry that brings him his living is invited and encouraged to join the Electronic Guild. In recent months, nearly a third of all new R.M.A. members have been electronics merchants. D. W. (Don) Rolling, Assistant General Manager, Retail Merchants Association of Canada, is a dedicated man, enthusiastic about this important venture. It is important to you. His belief is worth supporting. For further information contact your local R.M.A. representative or write Don personally at Suite 128, 17 Queen Street East, Toronto 1, Ontario.

Letters

TO THE BOOSTER

FROM T. C. Darling,
T. C. Darling Co.,
1467 Mansfield Street,
Montreal, Quebec.

In a recent copy of the "Booster" we were quite interested in the publication of Mr. R. Ward's letter to Mr. Sadovnick of Professional Assn. of Independent Electronicians.

A while back it almost looked as if Philips were "sponsoring" this association—certainly applauding them. I also agree that association is good, almost essential—as long as it remains free. But I have realized for a long time that this Association of "Independent" ones have all along planned to incorporate a closed corporation in the Province of Quebec, and so very completely control all technicians, with obvious loss of independence. Actually such a Bill was presented to the Legislature recently.

Therefore Mr. Ward's slogan, "Professional dignity . . . but with freedom" takes on added significance. My point is that the aims of this association and "freedom" are quite opposite.

A few years ago another group attempted the same coup and caused considerable distress in the industry, until they were defeated through legal Court action and dissolved.

The old slogan—"Investigate before you invest" could apply here. Why not weigh the facts before you become a tool of any particular faction?

Editor's Note:
It is with pleasure that we publish the above letter, controversial comments giving the other point of view are too seldom received by the "Booster."

The information contained in "The Booster" is based upon measurements and data which are considered reliable. The recipient accepts sole responsibility for the use of the information contained herein, not only from the standpoint of reliability, but also insofar as the infringement of patent or other rights of third parties may be concerned. Anyone wishing to reprint or use any article in whole or in part, should first obtain permission from the Editor and Philips Electron Devices Ltd.

Further copies available in limited numbers upon request.

what's NEW

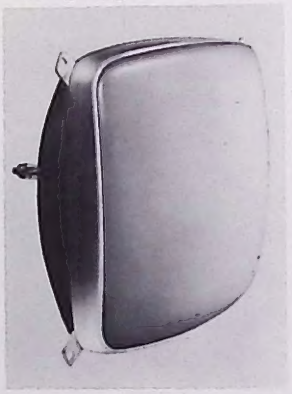
PHILIPS ANNOUNCE NEW PICTURE TUBE

A new concept in Television Picture Tube design will be introduced this Spring to the Equipment maker and replacement markets across Canada. Although it is true that the picture tube could always be regarded as a miracle of ingenuity, there was one significant drawback; the necessity to put a protective panel in front of the tube. In the factory as well as in service shops, television tubes had always to be handled with the utmost care, and quite often special safety measures had to be taken.

Philips have now succeeded in eliminating these disadvantages. Intensive research of the stresses prevailing in the glass of the tube envelope once this has been evacuated, has led to the principle of "integral protection". Philips is a world leader in introducing a practical application of this principle:

THE DIRECT VISION PICTURE TUBE

In this new picture tube the critical zone is strengthened by a surrounding metal frame. It is now no longer possible for small cracks which may occur in the tube, due to tensile stress, to spread rapidly; they remain very small, leaving the glass envelope intact. This is the principle of "integral protection."



The fact that a separate safety screen can be eliminated results in the following advantages:

An 8% higher luminous efficiency (equal to the loss formerly caused by the reflecting surfaces of the safety panel); better contrast, the number of reflecting surfaces being reduced; no accumulation of dust between the picture screen and safety panel; simpler mounting of the tube in the set.

SILICON RECTIFIERS SIMPLIFY REPLACEMENT PROBLEMS

Inventory costs and stocking problems can be greatly reduced by stocking one or two types of Philips silicon Top Hat rectifiers. Virtually all rectifiers whether silicon or selenium can be conveniently replaced by silicon Top Hats, simplifying replacement procedures by having only one basic installation configuration.

High quality silicon Top Hat rectifiers are highly economical due to recent price reductions permitted by large volume production in our Toronto plant.

Silicon Top Hat rectifiers are sealed with rugged, cold weld construction and feature low leakage current and improved forward voltage drop.

PUBLISHED BY ROGERS ELECTRONIC TUBES AND COMPONENTS *Philips Electron Devices Ltd., 116 Vanderhoof Avenue, Toronto 17, Ontario*

Watch for these

The following Receiving Tubes are now appearing in '64 Home Entertainment units by Canadian set manufacturers. Many of these types are appearing for the first time.

3EH7	6DS8	8FQ7	14GW8
3EJ7	6EH7	8JV8	15DQ8
3HA5	6EJ7	9A8	17EW8
4DK6	6GB5	9GV8	17JZ8
4HR8	6GH8	9JW8	18GV8
6AJ8	6JX8	12AL11	27GB5
6BL8	7ES8	12BE3	30AE3
6DC8	7HG8	13GB5	33GY7

Replacement market type popularity list

The following is a list of the "100 Most Popular Receiving Tubes" being used in the Canadian Replacement Market. This listing is in order of popularity.

5U4GB/5AS4	6AU6	6AK5	35L6GT
6CB6	6AQ5	6V6GT	6BC5
6AX4GTB	6AU6A	6AV6	12SA7
6BQ7A	25L6GT	6BZ6	12SN7GTA
12AU7A	6S4A	6BE6	12C5/12CU5
1G3GT/1B3	3CB6	50L6GT	6CM7
6SN7GTB	6AQ5A	6BA6	12AF6
6BZ7	4BQ7A	12AU7	6SK7
6DQ6B	12AX7	6T8A	6SQ7
1X2B	7AU7	1S2A	19AU4GTA
6BQ6GTB	5U8	6AM8A	12SQ7
35W4	4BZ7	6CS6	6CG8A
6CG7	5CL8A	6CL8A	6X4
6W6GT	OZ4A	6BQ5	6W4GT
6U8A	12AV6	5AM8	50B5
12AX4GTB	6X8	12SK7	6CD6GA
12BA6	6AW8A	6C4	5X8
12BE6	6CU6	3AU6	6CY5
6AL5	35Z5GT	6AS5	5Y4GT
6J6	5Y3GT	25CD6GB	4BS8
12AT7	10DE7	12AT6	35C5
50C5	25BQ6GTB	12AU6	6SA7
12DQ6B	12W6GT	6BS8	6AN8A
12BY7A	12BQ6GTB	12L6GT	6BC8
12BH7A	2CY5	3BZ6	5T8

NOTE: The above listing is based on National activities but regionally movement of type could vary and this listing should be used as a guide only.

PHILIPS ELECTRON DEVICES LTD., 116 VANDERHOOF AVENUE, TORONTO 17, ONTARIO